

Vapor-liquid equilibria for the binary system of
propane(R290) + 1,1-difluoroethane(HFC-152a)

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HCFCs and HFCs, which are the replacement of CFC refrigerants, have actually high GWP (Global Warming Potential). Light hydrocarbons are known to be a nice solution for reducing GWP because they are rather cheap, plentiful and eco-friendly chemicals. Also, GWP is very low. In this work, VLE data for binary mixture of propane (R-290) + 1, 1-difluoroethane (HFC-152a) at two equally spaced temperatures between 268.15 and 333.15 K were measured by using a circulation-type equilibrium apparatus. The experimental data were correlated with the Peng-Robinson equation of state using the Wong-sandler mixing rule combines with the NRTL excess Gibbs free energy model and the Carnahan-Starling-De Santis equation of state. Almost all the calculated values with this model give good agreement with the experimental data. Azeotropic behavior has been observed in all experimental conditions.